10th Brazilian Conference on Natural Products
XXXVI RESEM
4-7 November 2025, Belo Horizonte, MG, Brazil

Section: 03

EVALUATION OF THE ANTIVIRAL POTENTIAL OF BRAZILIAN PROPOLIS AGAINST ZIKV

Anna Lívia Oliveira Santos[1*]; Nagela Bernadelli Sousa Silva [1]; Júlia Amaral Vieira d'Almeida [2], Natasha Marques Cassani [2], Ana Carolina Gomes Jardim [2]; Jairo Kenupp Bastos[3]; Carlos Henrique Gomes Martins[1]

anna.livia@ufu.br

1-Laboratory of Antimicrobial Testing, Institute of Biomedical Sciences (ICBIM), Federal University of Uberlândia (UFU) Av. Maranhão - 1783, Uberlândia, MG, Brazil 2-Laboratory of Antiviral Research / Institute of Biomedical Sciences (ICBIM), Federal University of Uberlândia (UFU), 38405-318, Uberlândia, MG, Brazil 3- Faculty of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo (USP), 14040-903, Ribeirão Preto, SP, Brazil.

Neonatal infections represent a critical public health issue, given their association with neurological complications and increased risk of mortality. Among the viral agents of concern, Zika virus (ZIKV) stands out for its ability to cross the placental barrier and cause severe congenital disorders, raising global concern. Although it has significant clinical relevance and epidemiological impact, no vaccines or approved antiviral treatments are currently available. In this context, natural compounds such as Brazilian propolis extracts have attracted attention for their potential antiviral properties. Therefore, this study aimed to evaluate the cytotoxicity and antiviral activity of Brazilian Green Propolis from the Caatinga biome and Brazilian Propolis against ZIKV in an *in vitro* model. Vero E6 cells were treated with the extracts at concentrations of 2, 10 and 50 µg/mL and subjected to the MTT assay after 72 hours to assess cell viability. For the antiviral assay, cells were infected with the ZIKVPE243 strain (Donald et al., 2016) at multiplicity of infection (MOI) 0.005 for Green Propolis and MOI 0.01 for Red Propolis, in the presence or absence of the extracts at their highest non-cytotoxic concentration. After 72 hours, cells were fixed and analyzed by immunofluorescence to quantify infectious foci (FFU/mL) as previously described (Cassani et al., 2023). All treatments showed cell viability greater than 80%. In the antiviral assay, Green Propolis reduced ZIKV infection by 40.4%, while Red Propolis achieved a 33.5% inhibition, both at 10 µg/mL. These findings indicate that the evaluated propolis extracts exhibit low cytotoxicity and relevant antiviral activity against ZIKV, suggesting their potential as sources of new antiviral compounds.

Keywords: *antiviral activity, Brazilian propolis extracts, cytotoxicity, Zika vírus*

CASSANI, N. M. *et al*. Roles of *Bothrops jararacussu* toxins I and II: Antiviral findings against Zika virus. **International Journal of Biological Macromolecules**, v. 227, p. 630–640, fev. 2023.

DONALD, C. L. *et al*. Full Genome Sequence and sfRNA Interferon Antagonist Activity of Zika Virus from Recife, Brazil. **PLOS Neglected Tropical Diseases**, v. 10, n. 10, p. e0005048, 5 out. 2016.